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Precluded and Foreclosed Macrosite Preservation and Management Opportunities:

The Wood Ridge Forest Preserve of DuPage County, Keepataw Forest Preserve of Will County, Black Partridge Forest Preserve and Black Partridge Nature Preserve of Cook County all have jurisdictional boundaries at the intersection of three county lines. Clearly these boundary lines do not represent, nor act as a containment of, distinct and separate ecological landscapes. Rather, they represent the collective efforts of separate and politically distinct agencies which all recognized the regionally significant natural resources along the DesPlaines bluff and river valley corridor. Various preservation agencies also recognize the integrated relationships and functions of the ecosystems comprising the totality of this landscape and each acted in concert toward a common vision of protection and preservation.

Each Forest Preserve District is a separate land management and preservation agency of their respective county created and given authority by the Illinois Forest Preserve Act or the Illinois Downstate Forest Preserve Act. The purpose of a Forest Preserve District is best defined directly from the Illinois Statutes, 70/ IL CS 805/ Downstate Forest Preserve Act,

Sec. 5. "Any forest preserve district organized under this Act shall have the power to create forest preserves, and for that purpose shall have the power to acquire in the manner hereinafter provided, and hold lands containing one or more natural forests or parts thereof or land or lands connecting such forests or parts thereof, or lands capable of being forested, or capable of being restored to a natural condition, for the purpose of protecting and preserving the flora, fauna, and scenic beauties within such district, and to restore, restock, protect and preserve the natural forests and such lands together with their flora and fauna, as nearly as may be, in their natural state and condition, for the purpose of the education, pleasure, and recreation of the public."

The District views the acquired, protected and preserved lands and their resources to be held in public trust for education and pleasure for generations now and into the future.

A six lane Tollroad/Freeway proposed development and impact corridor along the respective edges of these three preserve political boundaries has not just an affect on each preserve, but a physical and functional fragmentation of this total landscape. Any such project must not preclude or foreclose opportunities for landscape management capabilities, enhancing habitat continuity, and collectively sustaining, restoring, protecting, and preserving resources. The District seeks a commitment for such assurances.

- 4.45 Future opportunities must not be jeopardized for DuPage, Will, and Cook County Forest Preserve Districts to dedicate their respective Keepataw, Wood Ridge, and Black Partridge Forest Preserves as a single State Nature Preserve complex added as addition to Black Partridge Nature Preserve. When the potential affected environment and environmental consequences of the project are viewed from this landscape perspective, an integrated and complex array of cause and effect relationships begin to emerge. The 2000 DSFEIS does not address in chapters entitled "Affected Environment" or "Environmental Consequences" that which is likely to result from direct project impacts and then examine resultant shifts in integral system functions and biotic and abiotic processes synergistically triggering indirect, secondary, and cumulative impacts to

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ecosystems throughout this landscape. These concepts are best illustrated in the following example discussed next.

Road Salt Dispersion Patterns and Deposition Concentration Projections:

The District is appreciative and commends IDOT for fulfilling one of the requested environmental impact mitigation commitments agreed to in the 1996 FEIS by contracting a road salt dispersion study with the Illinois State Water Survey. Our review of findings contained in the report titled "Atmospheric Dispersion Study of Deicing Salts Applied to Roads: First Progress Report" as well as personal discussion with the project's Atmospheric Physicist, Dr. Allen Williams, demonstrate a most valued research and monitoring study. The District strongly urges continued funding and operation of this study paramount to collecting empirical data on source identified road salt dispersion patterns and deposition concentrations. Such data can serve many other road-project environmental impact assessments in the future and will undoubtedly improve ecological sensitivity and drive the creation of effective roadway design solutions and operational alternatives.

The study's preliminary findings are discussed well in the "Environmental Consequences" chapter, section 4-9 through 4-11. The summary review only states the following with respect to salt spray deposition associated with the proposed Preferred Alternative:

- § Aerial salt deposition from the I-355 Bridge over the DesPlaines River corridor will occur primarily to the east of the proposed highway, with very little deposition occurring to the west.
- § The aerial salt deposition plume downwind of the I-355 bridge over the DesPlaines River is expected to carry farther downwind, relative to the I-55 salt plume, which will have its maximum deposition impacts much nearer the freeway.

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Despite the studies monitoring data findings, no discussion on potential cause and effect relationships are discussed in regards to the potential salt deposition impact zone projected by the proposed Preferred Alternative and no substantive changes in impacts are noted in sections covering "Alternative Deicing Chemicals" or "Measures to Minimize". As a result, the District would request that the SFEIS include an analysis and discussion of potential impacts considered from the projected road salt dispersion patterns and salt deposition concentrations expected on the landscape. Such analysis and discussion should be integrated throughout applicable sections of the "Affected Environment" and "Environmental Consequences" chapters. These analyses should consider the direct, indirect, secondary, and cumulative impacts by reviewing additional data, other road projects, and applicable related studies. A careful re-examination of Section 4.10.3 "Impacts to Wetlands" appears warranted.

Based on personal discussion with Dr. Williams and examining data findings attributable to the I-55 freeway salt source assessment, other ISTHA road projects and wetland mitigation studies, literature searches, District preserve data and other applicable observations; the District submits these specific concerns regarding the Preferred Alternative:

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§ The Wood Ridge Forest Preserve will likely receive salt deposition patterns within the preserve at similar distances observed in the road salt dispersion study. Projections would indicate an approximate 500-meter penetration from the road project toward the east while the road extension remains at grade. As the road extension becomes elevated to cross the DesPlaines River valley, deposition patterns and distances are expected to increase. Subsequently natural resource area closer to the river and east of the bridge extension can expect an expanded salt deposition zone in comparison to the I-55 data. These projections of salt dispersion and resultant concentrations are expected to be significantly different than that of salt deposition and loading concentration levels on the present landscape. An isogram projecting the studies findings over the entire bluff and river valley should be presented in the SFEIS.

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§ Since I-55 source data was projected from deicing 4 lanes rather than the proposed 6 lanes for the extension, the study expects deposition values to increase by 50% of the findings. These increased concentration values should be plotted on the isogram.

§ The District projects approximately 70 acres of Wood Ridge Forest Preserve will be exposed to annual salt deposition concentrations at estimates similar to the study findings (See digital image attachment A). Additional acreage east of the project in Black Partridge Preserve and Black Partridge Nature Preserve are expected to be exposed to salt deposition concentrations at even further distances from the road and bridge extension.

§ The Wood Ridge Forest Preserve is largely comprised of what District policy recognizes as a Class IV, "Nature Conservancy", savanna community mapped and cataloged as EWR01. Floristic quality data from surveys indicates 317 native plant species out of 396 total species are present. The savanna has a conservatism of 66.56% and calculates a Native Floristic Quality Index (FQI) of 78.63 (See attachment B). The preserve assessment for fish and wildlife indicates 84 species comprising (6) fish, (5) amphibians, (6) reptiles, (50) birds, and (17) mammals. Based on species point index rating and status scores the preserve has a faunal score of 774 with a 9.21 mean rated wildlife quality at 3.97 standard deviation. The preserve calculates a 327.13 Faunal Index (See attachment C). Of 60 preserves within the DuPage County Forest Preserve District, the Wood Ridge Forest Preserve is very high regarding these quality indices.

§ Annual salt deposition and accumulation over time in this upland savanna community is expected to degrade the quality and structural composition of the flora, resultant habitat, and result in declines to existing fish and wildlife within the projected deposition zone. A major literature review by Trombulak, S.C. and C.A. Frissell (2000) Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities, support assumptions that the influx of salts (as dust or in solution) into roadside habitats leads to deteriorated ecosystems, lower plant and animal species diversity, opens up communities to invasive salt tolerant species, and exposes organisms to other toxins.

§ The zone of salt impact in Wood Ridge Preserve lies completely in the Black Partridge Creek Watershed. District observations of degraded plant communities upland of seeps and fens shows an increase in soil erosion and resultant sediment loading down slope. In addition, subsurface hydraulic flows and associated calcium carbonate water chemistries upland of fen and seep communities are shifted toward surface water runoff down slope with more nutrient loaded chemistries resulting. Forman, R.T.T. and R.D. Deblinger (2000) state in The Ecological Road-effect Zone of a Massachusetts (USA) Suburban Highway that salt, which moves in ground water through porous glacial till and reaches a

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shallow pool or pond, can be expected to cause elevated pool salinity and affect sensitive species, especially in the spring. When examining life history stages, interpretation of this would translate to negative effects on aquatic invertebrates and aquatic vertebrates and their eggs and larval forms.

§ Secondary salt discharges from contaminated sediment along the bluff will also migrate down slope and downstream increasing salt loading and cumulative impacts in the river valley ecosystems (seeps, fens, ponds) beyond indirect airborne salt deposition impacts. Such secondary and cumulative impacts are likely to significantly alter salinity, wetland flora, resultant habitat, and associated sensitive organisms. Apfelbaum, S.I. 1991 in an Evaluation of the Condition and potential for Restoration Success in the Mitigation Wetlands Created by the Illinois State Toll Highway Authority. Final Report, cites an unpublished study indicating..."High levels of road contaminants including deicing salts...cause a significant zone of biological deterioration in wetlands adjacent to highways. Significant depression of biological diversity of emergent and submerged rooted aquatic plants, invertebrates and fishes and other aquatic vertebrates (including waterfowl)..."

§ District owned "Schick Road Fen" situated along the slope within the West Branch of the DuPage River Valley near West Chicago, has suffered a 22% decline in floristic quality and a 38% decline in native species diversity in 12 years of observations. Chloride content of water in the fen was measured at 114ppm in July of 1998.

§ Attachment D, depicts chloride measurements in eight District study wetlands over a seven-month period from November 1997 and July 1998: A very strong negative correlation exists between chloride content of the wetland and the number of native species present as well as their conservatism. Data showed a (-0.65) correlation between the amount of salt found in wetlands in the month of May and the number of native species present. A positive correlation of 0.77 between May salt content and the number of adventive species. A strong negative correlation of (-0.87) exists between the May salt levels and the average native plant coefficient of conservatism. In general the District has observed that as salt concentrations increase, native plant species numbers and conservatism are significantly reduced while adventive species, especially halophytes, increase.

§ ISTHA compensatory mitigation wetland projects along I-355 adjacent to Churchill Forest Preserve and Greene Valley Forest Preserve indicated similar water quality problems and vegetation responses. A write up on the projects stated, "Salt spray from adjacent roadways and nutrient loading from point and non-point sources severely restricted the types of plants that could be become established in the wetlands. Electrical conductivity test and sodium analyses of the soils at the mitigation sites revealed excessively high salt contents in more than half of the soil samples. The dominance of salt tolerant species in the areas that tested high for salts corroborated the soluble salt data. These halophytic species had invaded the wetlands and were excluding other more desirable wetland species." (Public Roads Online)

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Fens, seeps, ponds, and associated wetlands found in the salt deposition zone will likely undergo similar declines in native species and overall floristic quality, structure, and composition. Such degrading alterations to these wetland habitats will likely cause major shifts and declines in faunal communities. Organisms such as insects, other invertebrates and amphibian species are very susceptible to decline in these conditions. Road salt use

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